



THE SECOND REVIEW OF THE LAKE EYRE BASIN INTERGOVERNMENTAL AGREEMENT

May 2018

noetic

Noetic Group were commissioned on behalf of the Lake Eyre Basin Ministerial Forum to review and prepare a report on the operation of the Lake Eyre Basin Intergovernmental Agreement



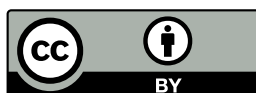
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ABOUT THE AUTHORS

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Andrew's expertise in strategic review provided vital independent oversight to the Lake Eyre Basin Intergovernmental Agreement Review. With highly developed skills and experience in dealing with difficult problems, Andrew provided high level scrutiny and oversight to deliver a high quality report.

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The Review would also like to acknowledge the effort and input from Dr Bruce Hooper and Louise Yabsley in developing this report.



EXECUTIVE SUMMARY

Noetic Group were commissioned on behalf of the Lake Eyre Basin Ministerial Forum to review the operation of the Lake Eyre Basin Intergovernmental Agreement (the Agreement) in accordance with clause 10.1 of the Lake Eyre Basin Intergovernmental Agreement Act 2001. This Review of the Agreement follows a review completed in 2007. The Review has four overarching terms of reference agreed to by the Lake Eyre Basin Ministerial Forum, which are to determine if:

- the purpose of the Agreement has been achieved
- the objectives set out in clause 2.2 of the Agreement have been achieved
- the Agreement efficiently addresses the current threats and pressures within the Lake Eyre Basin
- the activities of government adequately manage the threats and pressures within the Lake Eyre Basin.

There are a number of considerations to be assessed to address these questions. Data has been gathered from initial stakeholder interviews, a review of governance arrangements and scientific reporting on the Lake Eyre Basin (the Basin). In depth public consultation by the Department of Agriculture and Water Resources and feedback from this has been included in this report.

The Agreement has 11 Objectives (outlined in Appendix B, Item 7), which allow for Party governments to come together in good faith to enact the terms of the Agreement, consider biodiversity and heritage issues in relation to water management, develop management policies and strategies and facilitate economic development in the

Basin. Many stakeholders remarked in the course of this Review that the Agreement is working as a framework and as a process for interaction between the states, the territory and the Commonwealth, but there is room to strengthen the Agreement. There are challenges imposed by the lack of detail in some areas of the Agreement. This includes a lack of definition regarding the roles and responsibilities for Agreement groups such as the Lake Eyre Basin Community Advisory Committee and the Lake Eyre Basin Scientific Advisory Panel, and of a clear framework outlining decision making and responsibilities. The Agreement supports and has achieved useful cross-jurisdictional negotiations to build consensus and compromise between Party governments, informed by scientific expertise and community views.

The Review found common support for the way the Agreement has been able to harness involvement with Aboriginal communities throughout the Basin. Good management, commensurate with the risk level, will contribute to maintaining the health of the Basin. Frequent engagement with stakeholders is the key to successful governance, and the Agreement provides pathways for this engagement. The Agreement has demonstrated the ongoing value of Aboriginal voices to be heard even in the remote areas of the Basin.

The connections between communities, scientists and government have expanded the depth and range of advice provided to the Lake Eyre Basin Ministerial Forum and the Lake Eyre Basin Senior Officers Group to better inform cross-border water management decisions. The Scientific Advisory Panel and Community Advisory Committee continue to provide an effective mechanism to increase our understanding of the Basin's biophysical, social, cultural

and economic value for a relatively small investment. The ecology and overall environmental state of the Basin have experienced no significant issues in the last 10 years, and the Agreement appears to be functioning well. The Lake Eyre Basin Rivers Assessment Program and the State of the Basin Condition Assessment Reports (2008, 2016) continue to improve the depth of knowledge on hydrology, water quality and fish population parameters. The 2016 State of the Basin Condition Assessment Report also evaluated threats and pressures to the Basin from a cross-jurisdictional perspective, allowing for more targeted focus for decision makers.

Since its inception in 2001, the Lake Eyre Basin Ministerial Forum has adopted six policies under the Agreement:

- River Flows Policy
- Water Quality Policy
- Water and Related Natural Resources Policy
- Existing Entitlements and Water Resource Development Policy
- Research and Monitoring Policy
- Whole-of-Basin Approach Policy.

During the course of the review, neither stakeholders from within government, nor those consulted as part of the public outreach indicated any knowledge of the outcomes of these 6 policies. The prevailing feeling was that they exist ‘on paper’ but haven’t been woven into the regular activities of Agreement parties.

The Basin, as assessed in the second State of the Basin Condition Assessment (2016), is in reasonably good condition overall. However, some of the threats and pressures outlined in Condition Assessment include:

- the impacts of climate change on Basin hydrology
- impacts from potential resource development such as mining or gas exploration

- further impacts from invasive plants and animals
- land use changes from irrigation developments in upstream locations and greater intensity of agriculture.

The Agreement’s structure in its current form is well set up to react to issues, and to deal with threats and pressures once they arise. However, feedback suggests that the development of a risk-based strategic plan and associated controls, would allow the Ministerial Forum, Senior Officers Group, Scientific Advisory Committee and Community Advisory Committee to maintain the current low-risk nature of the Basin.

The Agreement predates the National Water Initiative (NWI). While states and territories have adopted many NWI principles, the Agreement provides a formal environment for interstate conversations on elements of the NWI that relate directly to the Basin. There is alignment between the NWI and the Intergovernmental Agreement, but there is room for the Agreement to incorporate accountability frameworks, governance arrangements and financial principles. There is also an identified need for all parties to the agreement to develop a clearer, more co-ordinated approach to water resource management. This will allow better assessment of current and future climate change impacts, current and future water demands from potential mining and shale gas extraction, irrigation and other industries and enable a review of the current boundaries of the Agreement.

Stakeholders interviewed in this review were generally supportive of an evidence-based approach to Basin planning and management. This demonstrates how different policies lead to outcomes which are supported by measurement criteria. In turn, these measurement criteria can be used to inform policy and improve management.

The Lake Eyre Basin Intergovernmental Review is a useful process to trigger action and improvements. The real issue for many stakeholders was not the frequency of reviews, rather whether or not Governments would heed the results of the review process and take action.



INTRODUCTION

BACKGROUND

The Lake Eyre Basin

The Lake Eyre Basin covers an area of 1.2 million square kilometres and is one of the largest internally draining river systems in the world. Around 60,000¹ people live and work in the Basin, and the area supports a range of social and economic activities such as agriculture, mining and tourism, contributing to economic development of Queensland, South Australia and the Northern Territory. Australian Bureau of Statistics data from the 2016 census indicates that the area's population is decreasing on the whole, but this is extremely variable by region.

In addition to containing nationally important natural resources, the Lake Eyre Basin is closely intertwined with the Great Artesian Basin, which means at peak flow the combined systems contain over a quarter of Australia's fresh water. Rainfall and runoff are highly variable across the Lake Eyre Basin. The Basin ecosystems are unique and diverse, and home to the Malkumba-Coongie Lakes National Park which is incorporated within Coongie Lakes wetland, a recognised Ramsar wetland of international importance.

The coverage of the 2000 Lake Eyre Basin Intergovernmental Agreement includes: the Cooper Creek system (including the Thomson and Barcoo Rivers), the Georgina and Diamantina River systems within Queensland and South Australia ending at Lake Eyre. The Northern Territory portion of the Basin was added in 2004, when the Northern Territory became a signatory to the Agreement. The western South Australian basins were also included at that time.

¹ <http://www.bom.gov.au/water/awra/2012/documents/lakeeyrebasin-lr.pdf>

See Appendix A for a map of the major river catchments, wetlands and settlements covered by the Agreement.

Lake Eyre Basin Intergovernmental Agreement

The Lake Eyre Basin Intergovernmental Agreement is between the Australian, Queensland, South Australian and Northern Territory Governments. The original Agreement was signed in 2000 by the Queensland, South Australian and Commonwealth Governments. The Northern Territory became a signatory to the Agreement in 2004.

The Agreement provides for the sustainable management of the water and natural resources associated with river systems in the Lake Eyre Basin Agreement Area. It also provides for the development and implementation of Policies and Strategies for the region in order to avoid or eliminate adverse cross-border impacts and contributes to the various governments' ability to facilitate economic development in the Basin.

It should be noted that the Lake Eyre Basin Intergovernmental Agreement does not include ground water, including the Great Artesian Basin, though there are areas of overlap where springs manifest.

The 2018 Review

The Review was undertaken by Noetic Solutions (Noetic), Canberra. It involved:

- A desktop review of the documentation to provide an up-to-date understanding of the Agreement's strategic context. This involved, drawing on the

information directly provided by the Department of Agriculture and Water Resources, along with other relevant sources such as state and Federal Government reports, non-government organisation reports and evaluations, and academic research papers/evaluations.

- Attendance by Noetic as observers at a joint meeting of the Lake Eyre Basin Community Advisory Committee and Scientific Advisory Panel in Adelaide in April, 2017.
- Engagement with key stakeholders to inform the development of a Discussion Paper, including:
 - the Department's Project Sponsor and Project Manager
 - members of the Lake Eyre Basin Intergovernmental Review Steering Group
 - other key members of the Great Artesian Basin and Lake Eyre Basin section
 - members of the Lake Eyre Basin Senior Officials Group
 - the Chair of the Lake Eyre Basin Community Advisory Committee
 - the Chair of the Lake Eyre Basin Scientific Advisory Panel.
- The development of a question framework to support more detailed interviews with stakeholders including:
 - the Chair of the Lake Eyre Basin Community Advisory Committee
 - the Chair of the Scientific Advisory Panel
 - state and territory government representatives
 - Lake Eyre Basin facilitator
 - Geoscience Australia
 - Office of Water Science.

This process took the form of semi-structured interviews and targeted questions based on the Discussion Paper.

As part of the review, a six week public consultation was undertaken by the Department of Agriculture and Water Resources, in conjunction with State and Territory authorities. This consultation consisted of an online component, as well as public meetings held in each state and territory who are parties to the Agreement. In total 36 submissions to the online consultation were received by Noetic. Noetic also received 9 written submissions from various stakeholders, provided by the Department of Agriculture and Water Resources. The feedback addressed a number of issues facing the Basin and the Agreement as a whole. The feedback is referenced throughout the report in the relevant sections. However, the consistent themes from feedback were very clear. Stakeholders are generally positive about the Agreement and the work it enables but have concerns about its future direction. High level themes that are repeated in the feedback are:

- A need for more transparent governance and funding arrangements

- The need to expand the scope of the Agreement beyond the "water lens" to wider ecological, natural resource and even terrestrial issues.
- Expansion of the area of the Agreement to include the entire hydrological area of the basin, which would require NSW becoming party to the agreement.
- Better recognition of the role the Agreement can play in enabling development in the Basin area, both economic and social, particularly regarding traditional owners and areas of cultural significance.
- A Better framework for response to climate change.
- Consideration being given to closer alignment of the Great Artesian Basin with the Lake Eyre Basin as ground and surface water are intrinsically linked.

ACHIEVEMENTS SINCE THE 2007 REVIEW

Achievement in stakeholder consultation – Aboriginal engagement

Stakeholders indicated support for the Agreement based on its ability to engage with Aboriginal communities throughout the Basin. To quote a stakeholder "Aboriginal interests should be a driver for improved natural resources management".

While the lack of profile makes Lake Eyre Basin natural resources management difficult, frequent engagement with stakeholders is the key to successful resources management. The Agreement has demonstrated the ongoing value of Aboriginal voices being heard even in the remote and vast areas of the Basin as outlined below.

The area covered by the Agreement has a significant Aboriginal population², and the Agreement and its structures have made great strides in incorporating these communities into the consultation and management of the Basin as evidenced by the recent Georgina Diamantina Cooper Aboriginal Elders Workshop.

Aboriginal Forum and Indigenous Rangers

Lake Eyre Basin Aboriginal Forums have been held approximately every two years since the establishment of the Agreement. They provide an avenue for building relationships between Aboriginal people and groups within the Basin. These fora facilitate discussions about Aboriginal involvement in the Agreement, and on the future of the Basin from an Aboriginal perspective.

The Lake Eyre Basin Community Advisory Committee provides representation of Aboriginal perspectives through its membership and engagement with the Ministerial Forum. Currently six of the 17 members represent Aboriginal interests from the different states and the territory.

Aboriginal participation in the Agreement also occurs indirectly. Indigenous Rangers and traditional owners assist with data collection and monitoring to contribute to the Lake Eyre Basin Rivers Assessment.

²Northern Territory portion: 80-90% proportion of Aboriginal population. South Australia proportion: 15-40% proportion of Aboriginal population. Queensland portion: 15-20% proportion Aboriginal population. Herr, et al. 2009 p.65.

Draft Lake Eyre Basin 'Aboriginal Way' Map

The draft Lake Eyre Basin 'Aboriginal Way' Map (the Map) educates readers on the richness, diversity and vibrancy of Aboriginal cultures across the Basin in a way that honours the desire of Aboriginal people to tell their story. The Map is a measure of success for the Agreement, demonstrating what is possible when existing forums under the Agreement are used to highlight the presence and significance of Aboriginal people, places, cultures and histories across the Basin.

The development of the Map was led by the Lake Eyre Basin 'Aboriginal Way' Map Steering Committee, which included a number of representatives from the Lake Eyre Basin Community Advisory Committee. The process was supported by the Australian, Queensland, South Australian and Northern Territory Governments, Georgina Diamantina Cooper Aboriginal Group, BHP, Santos, South Australian Arid Lands, and Territory Natural Resource Management. The map is due to be officially launched later in 2018.

Feedback from the Georgina Diamantina Cooper Aboriginal Elders Workshop

The Georgina Diamantina Cooper Aboriginal Elders workshop was held on the 15th of May 2018 and involved consultation with Aboriginal community members and elders within the Lake Eyre Basin catchment. A number of outcomes resulted from the workshop regarding:

- Increased engagement from Aboriginal community members.
- Economic opportunities
- Water security and quality
- Integrity of Cultural Heritage Sites
- Strategic planning and information

Of the approximately 60,000 people that live within the Lake Eyre Basin Agreement area, 15% of those are Aboriginal. Additionally, 68% of the land within the Agreement area is under Aboriginal ownership, highlighting a perceived disparity between the Aboriginal population and activity within the area and the level of engagement from Senior Officers. Currently, annual engagement from the Community Advisory Committee is undertaken, but a need was identified by participants for increased engagement over all levels of governance within the Agreement and associated institutions, with appropriate time allocated to meetings and following up on issues raised in meetings. It was also agreed that Traditional Owners needed to be included in the monitoring on country.

Water can be taken from the Lake Eyre Basin for cultural purposes, but participants identified barriers to more economic utilisation of water by Aboriginal people, which were seen as preventing economic capacity building of Aboriginal people in the Agreement area.

There were concerns over the quality of potable water available for Aboriginal use within the Basin, with beliefs that the current water quality of water used in the Basin by Aboriginal people is posing a health risk.

Participants of the workshop saw a need to better protect

cultural heritage sites within the Agreement area. This could be addressed through an expansion of monitoring in the Basin to include cultural sites, values and status. A misalignment between legislation regarding cultural heritage sites was identified by participants, suggesting a more coordinated approach to cultural monitoring could be implemented.

Participants of the Aboriginal Elders workshop saw an opportunity for a strategic plan to be developed for the Lake Eyre Basin, noting that the Lake Eyre Basin and Great Artesian Basin were inherently interrelated. Due to this, participants recommended that engagement and discussion between the two basins be drawn together. This approach also has the benefit of reducing duplication of effort, strain on resources and streamlining processes.

There was also agreement that the provision of information to Aboriginal people in the Lake Eyre Basin was not adequate. Information communicated to Traditional Owners has been seen as out of date, limited and difficult to understand.

Participants of the workshop agreed to contact Federal and State Ministers responsible requesting that the Community Advisory Committee form an Aboriginal Subcommittee to better represent Aboriginal interest in the Lake Eyre Basin. Participants also agreed to contact the relevant State Minister recommending that a third member be appointed on the Community Advisory Committee representing Traditional Owners of the area.

Broader engagement and participation

Stakeholder consultation indicated that the Agreement has been successful in achieving the following significant outcomes:

- integrating community views and scientific expertise into the management of the Lake Eyre Basin
- development of a State of the Basin Report which provides a detailed condition assessment of its watercourses and catchments every 10 years
- raising scientific interest and producing new knowledge about aquatic ecology and fluvial geomorphology of central Australian desert rivers
- addressing cross-border issues in water sharing such as those which occurred in the Cooper sub-basin
- providing a forum for a multi-jurisdictional approach to assess Lake Eyre Basin and river health.

With the exception of the Ministerial Forum, the Agreement does not explicitly outline what committees or boards are required for its operation, or how any which are set up are to operate. Provision is made for access to community feedback and scientific advice. These inputs are provided by the Community Advisory Committee (CAC), and the Scientific Advisory Panel (SAP).

These bodies have their own internal operating protocols, but these are not mandated as part of the Agreement.

While there is a funding provision within the Agreement, there are no explicit details of either the funding arrangements between the parties of the Agreement, or



accountability requirements in terms of financial reporting.

The lack of specific funding structures raises the issue of public transparency in regards to public engagement with the Agreement and the management of the Basin as a whole. There are no clear pathways for the public to seek further information and gain a more thorough understanding of the financial arrangements.

Public Consultation Feedback

During the public consultation period, stakeholders highlighted a need for secure, enhanced funding to continue monitoring and develop targeted strategic advice for the management of the Basin. Stakeholders also identified a need for the decision-making, management and financial arrangements to have greater accountability, suggesting an adaptive management model to monitor the effectiveness of the Agreement and any actions taken under its auspices. Having an adaptive management model was supported by stakeholders due to the potential for appropriate response mechanisms if indicators or controls are developed and used as triggers for management action.

Stakeholders commented that greater Aboriginal engagement would be beneficial to the implementation and development of a governance framework and strategic plan. Feedback received outlined that the development of a strategic plan could outline sources of funding and support. Additionally, a single governance framework could serve to detail reporting requirements, roles and responsibilities and communication pathways.

Specifically, outcomes of the public consultation were that direction was needed for the Community Advisory Committee and the Scientific Advisory Panel in order for those committees to provide relevant, strategic advice to the Ministerial Forum. Stakeholders suggested that joint accountability be built in to a facilitator role or overall operation of the Agreement and emphasised the need for continued direct community involvement. Suggestions for pathways for accountability were to the Community Advisory Committee, the Scientific Advisory Panel, regional NRM bodies, and the Ministerial Forum.

A strong, consistent message received from public consultation was the need for a clear and secure funding arrangement to enable decision making and enhance accountability in the Basin. The majority of stakeholders saw financial arrangements and funding as a critical element in proactive management in the Basin.

Quality of scientific advice and stakeholder input

The Agreement led to the creation of a Scientific Advisory Panel, in concert with a Community Advisory Committee, to assess the impacts of decisions and future challenges to the Basin. They serve separate but mutually supportive roles within the application of the Agreement, the Scientific Advisory Panel provides expert robust analysis of data, while the Community Advisory Committee provides an avenue for broader stakeholder engagement.

The connections between communities, scientists and government have expanded the depth and range of advice provided to the Lake Eyre Basin Ministerial Forum and the Senior Officers Group to better inform cross-border water management decisions. The Scientific Advisory Panel and Community Advisory Committee continue to provide an effective mechanism to increase the understanding of the Basin's biophysical, social, cultural and economic value for a relatively small investment. The collaboration between these bodies has promoted stakeholders' trust in the purpose and operation of the Agreement.

The Lake Eyre Basin Rivers Assessment Program and the State of the Basin Condition Assessment Reports (2008, 2016) continue to improve the depth of knowledge on hydrology, water quality and fish population parameters. The 2016 State of the Basin Condition Assessment Report also evaluated threats and pressures to the Basin from a cross-jurisdictional perspective, informing more targeted areas of focus for decision makers.

Public Consultation Feedback

During consultation, stakeholders highlighted a need for more detail and specificity regarding the Community Advisory Committee and the Scientific Advisory Panel. Stakeholders commented that Section 7 and Section 5 of the Agreement (referring to the Scientific Advisory Panel and the Community Advisory Committee respectively) are vague. Consequently, a specified outline of roles, responsibilities and reporting arrangements for both committees was a particular area of focus. Additionally, a broader representation of stakeholders on the Community Advisory Committee, and operational details of both committees (including but not limited to: panel selection, recording meeting outcomes and accountability pathways) were highlighted as areas for improvement.

Significant Policies

The Agreement provides the legislative framework for the Ministerial Forum to develop Policies and Strategies for the sustainable cross-border management of water and related natural resources within the Agreement Area.

Since its inception in 2001, the Ministerial Forum has adopted six policies (detailed below) under the Agreement, attempting a whole-of-Basin approach to cross-border management of water and related natural resources. The aim of these policies is to ensure compatibility between the relevant legislation, policies, and planning processes across the Basin.

1. **River Flows Policy.** Flow regimes of river systems within the Agreement Area are managed to protect and maintain the ecological integrity and natural function of in-stream and floodplain ecosystems, and the viability of economic, social, cultural and other activities which do not threaten these environmental values.
2. **Water Quality Policy.** Water quality in the river systems within the Agreement Area are managed to protect and maintain the ecological integrity and natural function of in-stream and floodplain ecosystems and the viability of economic, social, cultural and other activities which do not threaten these environmental values.
3. **Water and Related Natural Resources Policy.** Water and related natural resources associated with the river systems within the Agreement Area are managed to protect and maintain the ecological integrity and natural function of in-stream and floodplain ecosystems and the viability of economic, social, cultural and other activities which do not threaten these environmental values.
4. **Existing Entitlements and Water Resource Development Policy.** Water resource planning, allocation and management arrangements, including the management of water entitlements, are to be

compatible with the Lake Eyre Basin Agreement. Efficient use of water is a fundamental principle of water entitlements and utilisation. Water resource development proposals are assessed to determine their potential impact on river flows and water quality, and compatibility with the Agreement and relevant water resource plans. These assessments are based on the best available scientific information and local knowledge (including information from other regions in Australia and overseas).

5. **Research and Monitoring Policy.** Management of water and related natural resources associated with the river systems in the Agreement Area are to be guided by the best available scientific information and local knowledge, and by the results of ongoing monitoring and periodic assessment of the condition of these river systems. Targeted research may also be undertaken to address identified knowledge gaps.
6. **Whole-of-Basin Approach Policy.** Water and related natural resources in the Lake Eyre Basin Agreement Area are to be managed through a whole-of-Basin approach so as to achieve complementary outcomes, through the implementation of state/territory legislation and the plans and associated investment strategies of relevant regional bodies in Queensland, South Australia and the Northern Territory.

Stakeholder Feedback

During the course of the review, neither stakeholders from within government, nor those consulted as part of the public outreach indicated any knowledge of the outcomes of these 6 policies. The prevailing feeling was that they exist 'on paper' but haven't been woven into the regular activities of Agreement parties. Examination of these policies and their efficacies should be an action of high order for the Ministerial Forum and Senior Officer's Group, supported by the Scientific Advisory Panel and Community Advisory Committee, as per the recommendations below.





CURRENT STATE

The Review found that the Agreement is broadly achieving its purpose as stated in Clause 2.2 which outlines its objectives. The Agreement's objectives focus on a mechanism for the Commonwealth, states and territory governments to come together to raise and address water and related natural resource management issues in the Lake Eyre Basin Agreement Area that have potential or real cross-border impacts.

The Agreement has facilitated effective negotiation and compromise between jurisdictions' ministers in the national interest, supported by expert advice from the Scientific Advisory Panel and key stakeholders through the Community Advisory Committee. This demonstrates the Agreement is effective and serves all stakeholders.

The current collaborative management structure has been operating effectively due to strong relationships and good retention of corporate knowledge. It provides pathways for community and stakeholder engagement and feedback, allows and supports data collection and assessment, and provides a method of communication between stakeholders, senior officers and ministers. Stakeholders have indicated however, that there is room for improvement within this structure, as current arrangements, including the Community Advisory Committee, Scientific Advisory Panel and the Senior Officers Group, are not explicit in the Agreement.

The Agreement establishes institutional arrangements for the development and/or adoption of Policies and Strategies, decision-making and allocation of resources, and a mechanism by which its efficacy is reviewed at regular intervals. Its focus is on promotion of coordinated management of the Basin supported by research and monitoring to inform decision making. Lastly, the Agreement aims to raise general public awareness of the special biodiversity and heritage values of the Basin Agreement Area.

The Review involved a desktop review of documentation and attendance by Noetic as observers at a joint meeting of the Community Advisory Committee and Scientific Advisory Panel in April 2017. Noetic engaged key stakeholders in the development of key themes and questions to be examined in the Review. Data from the public consultation feedback conducted by the Department of Agriculture and Water Resources was also considered by the Review.

Current Condition

The State of the Basin Report (2016) found that the river systems within the Basin are in relatively good condition. Many of the potential threats and pressures to Basin water resources occur in the broader landscape, for example the impact of terrestrial invasive species, climate change, mining and petroleum activities and other activities that affect natural flow and water quality.

Stakeholder feedback indicates that potential threats and pressures to the Basin at a high level include, but are not limited to:

- impacts of climate change on Basin hydrology
- impacts from resource development including potential mining and petroleum and gas exploration and extraction
- potential land use changes
- further impacts from invasive plants and animals.

There is some evidence to suggest that the Agreement provides a framework to address potential future issues, by identifying small warning signs in the Basin. However, these stakeholders indicated they would like to see monitoring of the Basin's water resources become more targeted.

While the Agreement is addressing current pressures and threats, the design of the Agreement indicates a weak structure, but one which is effective with people who are highly skilled and articulate in responding to threats as they arise. There is a risk that if there are changes in staff or a diminution of the Agreement, this capacity to respond will be lost. This also is reflected by the lack of definition around supporting structures as discussed above.

Efficacy of current policies and strategies

The Agreement has demonstrated enduring value in providing a Basin wide policy dialogue for decision makers, with direct input from stakeholders and supported by expert scientific advice. It provides a framework for addressing cross-border issues and managing the Basin using a multi-jurisdictional approach. This is integral to securing senior officer and ministerial engagement, particularly to resolve urgent and complex cross-border issues between Agreement parties. This dialogue also creates opportunities for governments to facilitate economic development in the Basin while considering ecological and cultural need.

The Review notes that very few stakeholders referred to any of the significant Policies and Strategies described above. While lack of reference to the Policies and Strategies is neither evidence of support or lack thereof towards the effectiveness of the Agreement, it is indicative of the general feeling that the Agreement could do more. There is potentially a lack of understanding among stakeholders that state policies incorporate Agreement objectives, and therefore there is an opportunity for state jurisdictions to demonstrate that their plans consider the Policies and Strategies.

In 2008, the Ministerial Forum endorsed the development of a Five Year Action Plan to implement the following Policies and Strategies

- River Flows Policy
- Water Quality Policy
- Water and Related Natural Resources Policy
- Existing Entitlements and Water Resource Development Policy
- Research and Monitoring Policy
- Whole-of-Basin Approach Policy

The Five Year Action Plan covered the period 2009-14 and has not been updated since its expiry. The majority of government stakeholders consulted were at pains to outline each state's and the territory's individual policies, which while valuable, only reinforce the view that the Agreement is not operating proactively as the feedback indicated actions are only taken in reaction to events. As discussed above, these policies should be reviewed by Senior Officers, as per the recommendations below.

Many Basin stakeholders remarked that the Agreement is working – both as a framework and as a process for interaction between the states, the territory and the Commonwealth. For example, the Agreement allowed ministers to agree on states' and territory positions about the impacts of proposed water resource developments. Likewise, the Agreement achieved its purpose by taking a multi-jurisdictional approach and integrating information from the Scientific Advisory Panel and the Community Advisory Committee. Stakeholders concurred that the Agreement created a forum for cross-border discussion on a range of water related resource management issues which had not occurred before. However, the lack of specificity in the Agreement regarding funding arrangements was identified as a constraint to the monitoring and management of the Basin.

Gaps in the Agreement

The Agreement does not have a long-term plan for the future management of cross-border impacts in the Basin relevant to these policies. The need for coordinated policy to address this shortfall should be investigated, as well as the efficacy of a process of long-term planning to address the Agreement's objectives. This process should include assessing future demands for water, how those demands can be addressed across jurisdictions and which demands can be addressed collaboratively.

A significant strength of the Agreement is that it is legislated, providing official avenues and pathways for cross-border engagement regarding Basin issues. However, this also creates restrictions of how specific an intergovernmental agreement can be, especially for an unregulated basin system with episodic water flow.

In addition to non-specific funding arrangements, the Agreement lacks a formal risk assessment framework, a

method for deeper assessment of controls specific financial management or reporting stipulations, and explicit provision for the operation of the Community Advisory Committee or the Scientific Advisory Panel. This lack of detail presents transparency challenges for the operation of the Agreement.

During initial stakeholder consultation, it appeared that the practical implementation of management in the Basin was good, although this was largely due to the strong relationships developed between stakeholders, not due to direct requirements outlined in the Agreement.

Several stakeholders commented that they believe in the value of an integrated approach but feel the Agreement does not contain mechanisms for raising cross-border issues and subsequent implementation of solutions.

Public consultation feedback

Stakeholders highlighted the need for an updated long term action plan, potentially forming part of the condition assessment. Suggestions from the feedback included using the Scientific Advisory Panel and the Community Advisory Committee to assess the progress and evaluate the state of the action plan. Activities such as the Lake Eyre Basin Conference and the Lake Eyre Basin Aboriginal Forums as mechanisms for progressing and analysing the actions of a long term plan.

An outcome from the public consultation was a lack of cohesion between the public understanding of the Agreement, and the goals and obligations of the parties to the Agreement. As discussed below, the option of merging of the Great Artesian Basin and Lake Eyre Basin on an appropriate strategic and policy level was put forward by stakeholders. This would mean that where overlap occurs between the two Basins, there is an opportunity to merge actions, policies and strategies.

The Agreement was found to be somewhat effective by stakeholders in facilitating the development of some cross-border policies and strategies but noted that a robust governance model could be included in the Agreement to address the need for a long term action and strategic plan, secure funding, risk assessment capabilities, and governance and accountability obligations.

As discussed elsewhere, sufficient resourcing – both in staff capacity and financial arrangements – to enable coordination and communication between states, stakeholders and the Commonwealth was identified as an area for improvement.

Policies and strategies regarding research and monitoring were found to be valuable by stakeholders. Feedback also outlined an opportunity for monitoring to occur from a catchment-based perspective.



CHALLENGES AND SOLUTIONS

The sheer size and remoteness of the Basin, and the evolving but still limited depth of scientific data at the sub-catchment level, means its health must be assessed according to imperfect and incomplete information. Due to this, decision makers must be able to identify and assess potential issues, which indicate symptoms of a future major negative change or trend.

Managing threats and pressures to Basin health

Risk-based precautionary approach

A risk-based precautionary approach to managing threats and pressures is the most effective and efficient way to maintain the Basin's current good health, at this time an explicit and measurable framework specific to the Basin does not exist.

This framework should use specific controls, which consider planning, policy and management activities to reduce the consequence and/or likelihood of particular risks to Basin health, while balancing social and economic drivers for sustainable development. It should also align with community expectations about risks to the Basin. The risk framework would also align with a broader shared vision for the Lake Eyre Basin.

Future scenarios for the Basin

A futures approach to the challenges to the Basin has been enacted previously, with a 'foresight' workshop taking place in 2011. This workshop considered likely trends, emerging forces and risk likelihood. This workshop provides a sound basis on which to build future scenario-based planning. This planning could identify potential future Basin landscapes and their associated threats and pressures. This forecasting approach could include identifying opportunities for integrated sustainable development, considering shifts in impacts from tourism, possible gas exploration, social development, agriculture and climate change.

This approach would require additional monitoring and evaluation support, including hydrological modeling on interconnected surface and groundwater resources. However, the extent of additional data would depend on the outputs required to inform strategic planning for the Basin's future vision and objectives.

Public consultation feedback

Feedback received during public consultation suggested that development in the Basin would be beneficial for the economic growth of the area, but should be calculated, sustainable and safe. Stakeholders also commented that there should be more focus on building international tourism infrastructure, noting the seasonal nature of tourism in the Lake Eyre Basin. Some stakeholders also held the view that unconventional onshore shale gas extraction would negatively impact the Basin. Stakeholders noted also that agriculture and fishing practices should be restricted in an effort to manage biosecurity risks. A changing climate was identified as a significant risk to the Basin, much of which is currently reliant on pastoral activity, an industry highly likely to experience the ill-effects of climate change.

A significant challenge that was identified during stakeholder consultation was the lack of economic development and activity with the Lake Eyre Basin. This included a lack of investment within the region, a lack of a diverse economy, and little potential of new job opportunities, an ageing population, and difficulty in attracting new families into the area. Stakeholders in communities also flagged the reduction of population throughout the entire Basin as an area for concern. The creation of specific areas that were devoted to ecological conservation and restoration, and targeted areas that were suitable for development was an outcome from the public consultation. An emphasis was placed on sustainable, appropriate development while maintaining the environmental integrity of key ecosystems. Stakeholders responded that there is a decline in the economic activity from a variety of already small and strained industries. Tourism was an area identified as an opportunity for future development, with consideration to the environmental impacts. The release of the draft 'Aboriginal Way' map for stakeholder consultation resulted in stakeholders highlighting an area to further develop Aboriginal engagement in the area when considering environmental management and future areas for economic activity.

Assessment in a challenging environment

The Lake Eyre Basin Rivers Assessment is a program that was designed with input from the Scientific Advisory Panel to collect data to inform the State of the Basin Condition Assessment. The Agreement stipulates that an assessment of the condition of all watercourses and catchments be completed every 10 years within the Basin Agreement Area.

The nature of the Basin is episodic, characterised by very high flows contrasted with very low flows. Methods used elsewhere in Australia and more globally for assessing rivers and catchments are of limited utility when examining irregular watercourses of a large internal Basin which spans numerous jurisdictions. Therefore, the challenges of creating a rigorous monitoring system are complex.

Raising emerging cross-border issues on water management and sharing

Given the joint nature of the Agreement, and the relatively slow pace of change within the Basin, the majority of actions under the Agreement are reactive. This process has served the area well, and the Review considers that this method of operation, will remain the major part of any action taken under the Agreement.

The current Agreement does not include triggers required to raise and consider management responses to proactively address emerging environmental issues in the Basin. The absence of an evidence-based escalation mechanism means that potentially symptoms of a future major negative change or trend could be overlooked. It also does not include a feedback mechanism to incorporate lessons learnt from economic, social and environmental improvements in the Basin, which could be harnessed in future water and related natural resources management planning.

From initial stakeholder feedback, the 'Lake Eyre Basin Vision' has not been emphasised in planning documents (such as the Five Year Action Plan) and the Agreement does not currently have a formalised vision or a long-term management plan. This could be addressed by considering the arrangements necessary to support the implementation of a second long-term Basin action plan between all party governments and an existing collaborative strategic planning framework to encompass a co-ordinated Basin wide approach.

A risk based strategic management plan for the basin, assessing biophysical, social and economic factors and suggesting appropriate controls should guide the management of the Basin. Data input would be measured against this risk based plan. Any indication that controls were not effective would act as a trigger to escalate cross-border water management and related natural resource management issues to the Senior Officers Group and Lake Eyre Basin Ministerial Forum. The indicators monitored by the Lake Eyre Basin Rivers Assessment are a good foundation to develop these potential triggers. Indicators could include changes in aquatic species, invasive species distribution, density and dispersal of high priority species, water quality thresholds, hydrological values due to climate change, cultural values and land productivity due to overgrazing.

Public consultation feedback

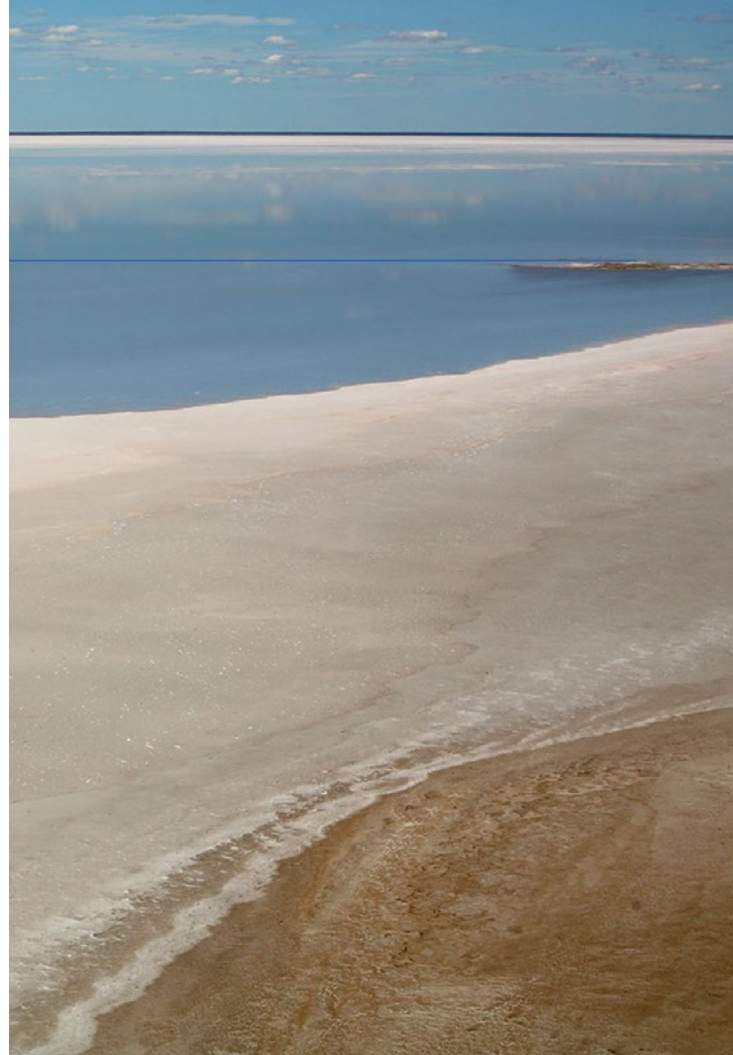
Stakeholders noted that a clearer operational outline, budget and decision making tool would assist in addressing issues that have cross-border impacts. Stakeholders suggested using a model for a strategic planning framework to provide direction for the management of the area. Additionally, sufficient resourcing of the Agreement procedures and staffing requirements (such as committees) was identified as key areas for improvement. Continued interdisciplinary scientific research was also identified as important for the Basin. Some stakeholders suggested that although the Agreement was achieving its broad purpose, there could be tighter requirements for states and the territory to maintain and protect the ecological

characteristics of the Basin. Stakeholders noted the need for genuine commitment and engagement from the relevant governments to maintain a whole-of-Basin approach and engender engagement from the Ministerial Forum.

Stakeholders largely supported the development of a risk-based plan to enhance monitoring of the Basin. Particularly, the need for triggers that incorporated landform-based criteria, river-specific characteristics, and factors such as erosion were identified during public consultation. Other factors that were highlighted included the potential future impacts of climate change, the impact of future development in the Basin, and the need for robust baseline data for comparison. The Lake Eyre Basin Rivers Assessment and State of the Basin can be used to form the establishment of baseline data, and continuous monitoring should be built on these solid foundations. Some stakeholders suggested having triggers in the form of acceptable ranges, to allow for natural variability and fluctuations. They noted that some existing models could be adapted for Basin management, using risk management principles to plan for likely scenarios. Evidence-based assessment of the water supply, including environmental, economic and social demands was also supported by consulted stakeholders. Additionally, stakeholders saw areas where the precautionary principle, which the Agreement has a guiding standard, could be further applied and prioritised, particularly when considering the potential of mining and shale gas extraction within the Basin.

Stakeholders also highlighted that developing the appropriate controls from the proposed strategic plan would involve significant work and time from the Community Advisory Committee and Scientific Advisory Panel to be most effective. This echoes the Review's findings of a need for the Agreement to specify clearer funding and operational requirements. Stakeholder feedback supported this by highlighting the importance of appropriate support and funding to enable the development of risk-based controls, but also the need for more secure funding in a more general sense. Stakeholders also noted the need for an appropriate management response to trigger readings as a point of concern – suggesting that an adaptive management strategy should be employed to respond to negative trigger readings.

Further to strengthening the framework and operation to the Agreement, feedback provided from consultation suggested that there should be stronger systems in place to provide policy recommendations that relate to Basin management, and a pathway for these recommendations to be actioned. Stakeholders also commented that combining legislation and policy across the Lake Eyre Basin and Great Artesian Basin could assist in standardising risk responses across the region. This aligns with the Review's analysis of examining the utility of an aligned governance structure of the two Basins.



Strategic planning

Since the Agreement was established, there has been a substantial growth of shared knowledge of Basin hydrological and ecological functioning, stakeholder engagement and trust in the operation of the Agreement. The Agreement has been effective in embedding stakeholder consultation and ongoing engagement in the operation of the Agreement, including some communication and independent advice to senior officers and ministers. This capacity building has been a worthwhile investment by governments, communities, industry and scientists, at a relatively low cost.

In 2010 the Scientific Advisory Panel adopted a Strategic Adaptive Management Framework as a new shared approach to the Lake Eyre Basin Rivers Assessment. This Framework was endorsed in 2010 by the Ministerial Forum as a tool for approaching the Lake Eyre Basin Rivers Assessment. The 'Lake Eyre Vision' which describes the Lake Eyre Basin as 'Australia's unique, natural desert river system; Healthy environments, sustainable industries, vibrant communities, adaptive cultures' has been a guiding platform to carrying out the Lake Eyre Basin Rivers Assessment within the Framework.

The Strategic Adaptive Management Framework was a tactical document used to guide monitoring within the Basin. It does not serve as a strategic plan for the basin as a whole. Taking the lessons learned from previous management approaches within the Basin area, the Agreement needs to have a risk-based, high level strategic plan in order to better understand and control risks, pressures and threats.

This strategic planning for the Basin can support the purpose and objectives of the Agreement by:

- defining the desired medium term (10 to 30 years) outlook for the Basin
- supporting a common set of outcomes for decision makers, communities, industry and scientists to work towards, at different scales and across disciplines
- guiding the development of Policies, Strategies and actions under the Agreement
- identifying triggers for management interventions.

From initial stakeholder feedback, the 'Lake Eyre Basin Vision' has not been emphasised in Agreement planning documents (such as the Five Year Action Plan) and the Agreement does not currently have a formalised vision or a long-term management plan. This could be addressed by considering the arrangements necessary to support the implementation of a second long-term Basin action plan between all party governments and an existing collaborative strategic planning framework to encompass a co-ordinated Basin wide approach.

Application to the Agreement

Risk-based strategic planning would improve the Agreement's mechanism for collaborative future planning

interventions by flagging where and when action is required. It would also support the guiding principles of the Agreement (Part III), which are intended to inform all decisions made under the Agreement. The Senior Officers Group, Community Advisory Committee and Scientific Advisory Panel are well placed to work together in a strategic planning process, as was demonstrated by the development of the Strategic Adaptive Management Framework, to identify future water resources management options for the Basin. This risk-based strategic planning process would involve community, scientific and industry engagement as and where required.

Establishing an evidence-based approach to inform decision making

There is value in examining a framework by which to more closely link resources assessment, research and monitoring needs. Establishing an evidence-based approach which can show how different policies lead to outcomes, reflected in indicators which in turn can be used to reform policy and improve management would be optimal.

Stakeholders interviewed were generally supportive of this approach and suggested:

- A process be developed that links existing monitoring, using indicators, to the work of Natural Resource Management (NRM) bodies in the Basin. These bodies could play a bigger role in monitoring and measuring as well as streamlining a consistent approach across the Basin. The Review notes this already occurs in some jurisdictions.
- The remoteness of the Basin and the evolving depth of scientific data at the sub-catchment level means its health must be assessed according to imperfect and incomplete information. Despite this, decision makers must be able to identify symptoms of a future major negative change or trend.
- A risk-based, precautionary approach to managing threats and pressures is an efficient and effective way to maintain the Basin's current good health. This approach uses planning, policy and management controls to reduce the consequence and/or likelihood of particular risks to Basin health, while balancing social and economic drivers for sustainable development. It should also align with community expectations about risks to the Basin.

The Review notes the points raised by stakeholders here, but in the wider context it is potentially infeasible to have a bottom-up approach to risk-based management. Senior officials noted opportunities available for broader scale monitoring through remote sensing data and potential advances in future technology.

The Agreement is well situated to use strategic planning as a process to bring about changes as cross-border issues arise, using the information from indicators of Basin conditions. Escalation of emerging critical issues would be based on likely changes to indicators of the Basin's key

cultural, economic, hydrological and ecological conditions. The Review notes there are other scientific data collection and assessment processes operating within the Lake Eyre Basin, associated with resource development industries and broader NRM, which provides an opportunity for the Community Advisory Committee and the Scientific Advisory Panel to broaden engagement.

Public consultation feedback

Feedback received around strategic planning noted that enhanced monitoring of the area should be a priority, in particular developing a strategy that targets priority areas. This was further supported by some stakeholders recommending adopting a management model that integrates a strategic planning framework, monitoring system and adaptive management. This model should also incorporate environmental, community and economic interests. A key research area identified in public consultation that was under-developed was geomorphology, a suggestion that was further supported by other feedback recommending expanding the parameters measured during monitoring in the Basin, such as soil and social factors. It was noted that stakeholders wanted more monitoring of pests and weeds, and identified these as a serious problem. This is outside of the explicit text of the agreement, which is primarily focussed on water resources, though an expanded and enhanced agreement should look to consider these issues as they are interconnected. Expansion of monitoring to include wider flora and fauna was a constant theme supported by stakeholders, in addition to examining increasing the frequency of monitoring within the Basin. Stakeholders also posited that increased monitoring was an opportunity for community, Aboriginal, local council, landholders and other relevant parties to increase their engagement in the area. Stakeholders commented that there was opportunity for the Community Advisory Committee to expand their capacity and engage further with the Scientific Advisory Panel to identify ranked threats to the Basin, and appropriate indicators to measure them against.

Feedback also suggested that appropriate funding of monitoring should be prioritised and secure to enable more regular collecting and reporting of data. A view to monitor and evaluate any changes that came from the Second Review was also evident throughout feedback. The report's recommendations in these areas were strongly supported by stakeholders

National Water Initiative

Ongoing water reforms have moved towards improved state and territory cooperation initiated by the Council of Australian Governments (COAG) Agreement and later developments in the early 2000s. The National Water Initiative (NWI) grew from a COAG communiqué in February 1994, which led to the establishment of the Water Reform Framework. The aims of this reform were to manage the nation's water resources more effectively and ensure both commercial and residential water users were treated fairly and equitably. From this initial framework, the NWI was agreed to in 2004. Its main focus is around pricing, allocation and access to water as a resource, as opposed to the management of the water catchment area. COAG stated its desire to install a system of governance between the Commonwealth and the states and territories in which governments interact cooperatively and collectively to solve common problems.

Through consultation, the Review found little evidence to suggest the NWI principles are well understood by the stakeholders in relation to the Agreement.

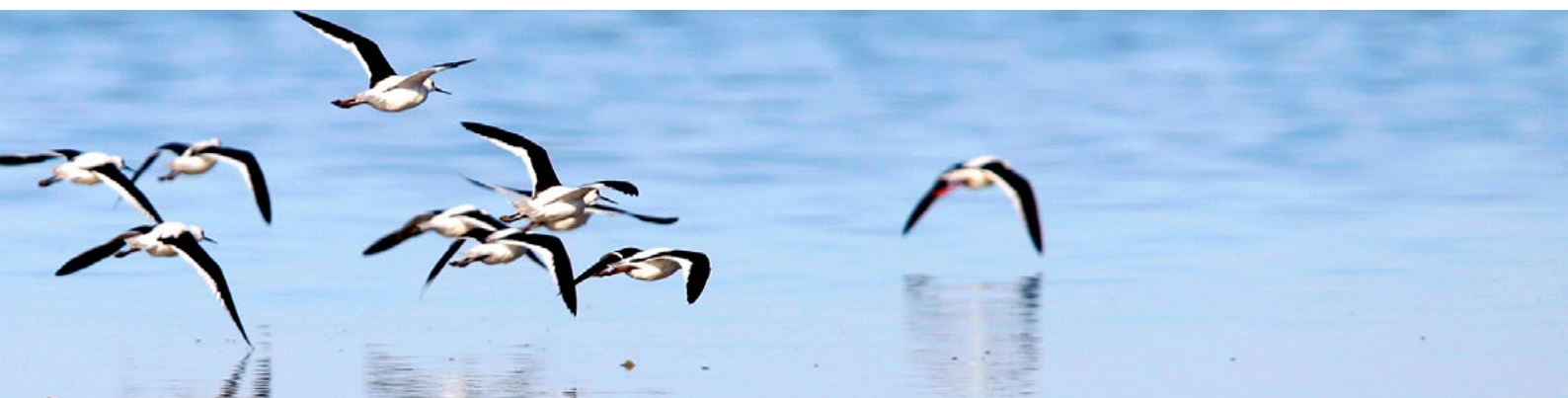
Overall alignment

The NWI is the blueprint for water reform within Australia. It aims to increase the efficiency of the country's water use, particularly in over allocated or stressed water systems, and implements the national water reform agenda. Under the NWI, governments across Australia have agreed actions to create a cohesive national approach to the way water is managed sustainably as well as priced and traded. Perspectives vary widely on the benefits of aligning the Agreement to the NWI. Outside of government, most stakeholders are unclear on the role of the NWI and its relevance to the Basin.

The overarching guiding principles for the NWI are to:

- ensure transparency
- ensure sustainability, both environmentally and fiscally
- maximise efficiency
- establish partnerships and knowledge sharing
- create a clear and nationally compatible water market system.

Note that the Agreement only aligns with the NWI in certain respects. Table 1 provides an overview of the ways the Agreement aligns with the NWI guiding principles.



National Water Initiative Guiding Principle	Alignment with Lake Eyre Basin Intergovernmental Agreement
(i) Ensure sustainability, both environmentally and fiscally	<p>Purpose:</p> <p>2.1 “The purpose of this Agreement is ... avoid or eliminate so far as reasonably practicable adverse cross-border impacts.” Avoiding adverse cross-border impacts which negatively impact the Basin is aligned with the sustainability element of the NWI.</p> <p>Guiding Principles:</p> <p>d. “that the water requirements for ecological processes, biodiversity and ecologically significant areas be maintained, especially by means of flow variability and seasonality” Prioritising the environmental need for water aligns with the sustainability guiding principle in the NWI.</p> <p>f. “that the storage and use of water both within and away from watercourses, and the storage and use of water from associated ground water, are all linked and should be considered together ... should be managed on an integrated basis” Integrated consideration of water resources in the Agreement area ensures decisions can be made considering a coordinated basin approach, allowing for sustainability throughout the catchment.</p> <p>g. “that precautionary approaches need to be taken....” Precautionary approaches define current sustainable development practices, thus aligning with the NWI.</p> <p>h. “... decisions need to be made within the context of the National Strategy for Ecologically Sustainable Development...” Framing natural resource management decisions within a national strategy for sustainable development aligns with the sustainability element of the NWI</p>
(ii) Establish partnerships and knowledge sharing	<p>Objectives:</p> <p>c. “to establish institutional arrangements ...” Embedding institutional arrangements within the Agreement provides a clear way to establish partnerships as per the NWI.</p> <p>f. “.... a cooperative approach between community, industry and other stakeholders, and all levels of government in the sustainable management” This objective clearly emphasises relationship building between stakeholders, aligning with the NWI.</p> <p>g. to encourage, promote and support water and related resource management practices which are compatible with the spirit and intent of the Agreement.</p> <p>j. “to raise general public awareness of the special biodiversity and heritage values of the Lake Eyre Basin Agreement Area.” This objective speaks to broader knowledge sharing of the Basin within the community, as per the NWI.</p> <p>Guiding Principles:</p> <p>j. “that decisions need to be based on the best available scientific and technical information together with the collective local knowledge and experience of communities within the Lake Eyre Basin Agreement Area.” This guiding principle clearly states the need for information to be gathered, aligning with the knowledge sharing element of the NWI.</p> <p>Part V – Community Advice and Representation 5.9 – 5.13</p> <p>Outlines how community advice can be attained, aligned with the knowledge sharing element of the NWI.</p> <p>Part VII – Scientific and Technical Advice 7.1 – 7.2</p> <p>Outlines how scientific and technical advice can be attained, aligned with the knowledge sharing element of the NWI</p>

Table 1. Alignment of Agreement with NWI Principles

Three of the Agreement's objectives provide further avenues for cross-border interaction beyond what is provided by the NWI. These allow for discussions on the management and implementation of policies in the Basin within a relevant context. They also allow for discussion on 'related natural resources'.

A key driver of the NWI is consideration and management of water "take". As it stands there is no measurement of water usage within the basin area, with some exceptions in South East Queensland. The usage of water within the system, while governed by the states and territory, is a cross-jurisdictional issue. The Scientific Advisory Panel should be empowered by the Ministerial Forum and Senior Officers Group to collect this data and construct a baseline against which the basin's resilience to climate change or other sources of water flow interruption.

Connecting water and related natural resource management

The health of the Basin's water resources is directly linked to the effectiveness of related natural resource management. The State of the Basin Report (2016) found that the river systems within the Basin are in relatively good condition. Many of the potential threats and pressures to Basin water resources occur in the broader landscape, for example the impact of terrestrial invasive species, climate change, mining and petroleum activities and other activities that affect natural flow and water quality.

Stakeholders often consider the whole landscape, rather than the area defined by the scope of the Agreement. However, the Agreement is focused on the cross-border management of water and related natural resources. Therefore, it is important for state and territory based natural resource management activities to be aligned with shared principles for the management of the Basin, rather than managing all elements of the landscape under the guise of the Agreement.

Measured indicators of the biophysical, social and economic health of the Basin can provide a defined way of aligning the management of related natural resources, without skewing the purpose of the Agreement. These indicators can be used as triggers for escalating threats and opportunities to decision makers for an appropriate management response. Indicators would be based on whole-of-Basin modelling, providing the evidence to assess the ongoing health of the system. Given the challenge of monitoring in remote and sometimes inaccessible areas, it is important to choose indicators that provide a reasonable picture of the Basin.

The Agreement parties need to ensure the following issues are considered at the Senior Officers Group meeting and Ministerial Forum:

- Providing consistent, effective avenues for the provision of advice from the community, industry and scientific community on any and all issues within the Basin Agreement area to enable the establishment of realistic, effective controls.
- Developing a risk-based strategic plan which will adequately identify real threats and pressures under the operation of the Agreement; and a stronger

process that uses signals from indicators and controls to trigger a response.

- Continuing to engage all stakeholders from government, natural resource management groups, industry and community
- Using mechanisms established under the Agreement to identify relevant future risks relevant to the IGA.

There is also scope for the individual parties to come to an agreement on the definitions and boundaries relating to 'related natural resources'. This would enable further engagement and cooperation between the various parties to the Agreement and stakeholders in the area.

Integration of surface and ground water management

While outside the scope of the current Agreement, good integrated water management practice brings together the governance of ground and surface water resources, as well as related natural resources, to maximise environmental, social and economic outcomes. The Agreement focuses on avoiding and eliminating cross-border impacts on water and related resources in the Basin, which in practice means consideration of surface water only. Numerous stakeholders indicated they were interested in the benefits of bringing the Lake Eyre Basin and Great Artesian Basin governance, stakeholder engagement and monitoring activities together, to ensure that surface and groundwater in the same geographical areas are governed consistently.

The natural environment is a significant user of both surface water and groundwater, while industry and community both primarily use groundwater. Water managers will need further information on surface water and groundwater interactions, the demands from social and environmental users of surface water throughout the Basin and the economic value of the surface water. Further investigation into these issues would provide state and territory governments with information they can feed into the cross-border discussions enabled by the Agreement and their decision-making processes. As outlined in the Purpose of the Agreement, this would potentially inform any Policies or Strategies discussed by the Ministerial Forum.

Table 2 shows the commonality in approach to governance and management of the Lake Eyre Basin and Great Artesian Basin. The common instruments demonstrate how the management of both basins align and where starting points for joint governance would lie. An examination of the benefits of aligning elements of both basin arrangements would focus on streamlining and adding value to existing processes (such as reducing costs, enhancing community representation and further aligning with the NWI) rather than applying additional institutional frameworks. An in-depth analysis of the costs would also need to be conducted. An analysis of conjunctive water management would align with the NWI Objective 23x: "recognition of the connectivity between surface and groundwater resources and connected systems managed as a single resource".

Ideally, the approach would harness the most effective elements of each current approach and combine these in practice initially and amending legal instruments over time. Senior Officers and Ministers would need to assess the potential legal and constitutional risks of this approach.

Lake Eyre Basin		Great Artesian Basin
Intergovernmental Agreement	Coordinating Instrument	Strategic Management Plan
Lake Eyre Basin Ministerial Forum established under the Agreement	Ministerial Engagement	Originally considered as part of Ministerial Committees under COAG framework with mandate for natural resource, environment and water issues.
Lake Eyre Basin Senior Officers Group established under the Agreement	Government Engagement	Senior Officers committee established in 2014
Lake Eyre Basin Community Advisory Committee established	Community Engagement	Coordinating committee established in 2004
Lake Eyre Basin Scientific Advisory Panel	Scientific and technical advice	Technical working group

Table 2. Institutional instruments of the Lake Eyre Basin Intergovernmental Agreement and the Great Artesian Basin Strategic Management Plan

Public consultation feedback

All stakeholders responded that closer management of both the Great Artesian Basin and Lake Eyre Basin would improve the sustainable management of both basins. The sensitivities of both systems to pollution and or extraction were highlighted during consultation. They noted that an increased understanding of both systems, including direct and indirect impacts would be beneficial, and highlighted the role the Lake Eyre Basin Rivers Assessment and State of the Basin reports played in supporting this. Security of funding was identified as a barrier to longer term development and management, and stakeholders saw an opportunity for a clearer funding and operational frameworks through further engagement with the Great Artesian Basin. Stakeholders also pointed out that shared community and stakeholder meetings between the two systems would be meaningful engagement.

Stakeholders noted that an administrative structure that allows a coordinated approach could be developed to manage both the Lake Eyre Basin and Great Artesian Basin in a cohesive manner. This would allow critical issues that affect both surface and ground waters to be addressed holistically. Feedback received from the public consultation process outlined the complex nature of both systems, and the difficulties in combining management of both simultaneously. There was overall strong support for assessing the integration for joint management and monitoring for both Basins to ensure sustainable management for both ground water and surface water systems. Combination of monitoring in both systems to provide a holistic understanding of the differences and shared issues was also an outcome of the public consultation feedback.

Enhanced spatial data sets mapping groundwater and surface water in the area were identified as being an area of priority, in addition to what

level groundwater ecosystems are reliant on for groundwater. Stakeholders viewed that increased engagement and inclusion with the Great Artesian Basin governance structures would be a positive and proactive approach to aligned governance of both Basins.

Current and future water demands from mining, gas extraction, irrigation and other industries

Changing demands for food, textiles and minerals in national and international markets are potential key drivers for resource use in the Lake Eyre Basin. Gas exploration is an area of potential significant development in the southern Queensland section of the Basin. On 29 November 2017 the Australian Government announced the Cooper Basin in Queensland and South Australia will be assessed as a potential source of gas. The \$30.4 million Geological and Bioregional Assessments Program will evaluate selected priority areas that are prospective for shale and tight gas. There are also potential increases from national tourism of the desert interior of Australia (Lake Eyre visitations, wilderness experiences, 'grey nomad' touring).³

Assessment of current and future climate change impacts

Scientists' understanding of climate change and its impacts on Australian landscapes like the Lake Eyre Basin continues to improve through advances in monitoring, assessment and modelling. Climate change is very likely to increase the existing high variability in Basin ecosystems, including increases in annual average temperatures, hot days, changes in rainfall, bushfire weather and evaporation rates and this will place significant pressure on the Basin's water resources.

The Agreement as it currently stands makes no specific provision for the impacts of long-term climate change. While the application of science to this issue would be of

³<http://www.environment.gov.au/minister/frydenberg/media-releases/mr20171129.html>



benefit, the Review recognises the difficulty, especially in an area of uncertain climate predictability, to model the future effects of both human impacted and natural process long-term climate change. In the development of a risk-based strategic plan for the Agreement the threats and pressures identified in the State of the Basin (2016) should be used to inform the development of risk controls.

Operation of the Agreement

The Agreement Act in its current form should be reviewed in order to test its validity with current legislative drafting principles. As part of this, subsidiary instruments such as annexes, rules and regulations should be considered to provide clarity and guidance about the operation of the Agreement.

As discussed above, a risk-based strategic plan for the Agreement area should be developed, with a clear funding basis and structure. An opportunity exists for jurisdictions to demonstrate that their planning frameworks consider the policies and strategies adopted by the Ministerial Forum. This approach can use existing stakeholder engagement and scientific advice to balance the economic, ecological and cultural needs of the Basin, using a risk-based approach to managing threats and pressures. The Basin's strategic direction should continue to be supported by targeted monitoring to allow integrated hydrological assessment and management of water and related natural resources.

This risk-based approach would use existing engagement mechanisms between governments, communities and industry, as well as input from the Community Advisory Committee and Scientific Advisory Panel, to better inform the Senior Officers Group and Ministerial Forum. This would enable cross-jurisdictional development of risk-based controls.

Current boundaries of the Basin Agreement

Currently the Lake Eyre Basin Agreement area does not include the entirety of the recognised geographical area of the Basin. Geographically the area stretches further south into South Australia, and East into New South Wales, whereas the Agreement area does not.

The previous review in 2007, made the recommendation that 'the boundary of the Lake Eyre Basin Intergovernmental Agreement Area be expanded to include all of the hydrological Lake Eyre Basin'. Further support to this recommendation comes from the Bureau of Meteorology (BOM) report in 2012, in partnership with the Commonwealth Scientific and Industrial Research Organisation (CSIRO), which recognised the Bulloo Basin as part of the wider Lake Eyre Basin (See Figure 1). This was raised at the Lake Eyre Basin Ministerial Forum, as well as the Scientific Advisory Panel and Senior Officers Group, in 2012, but any decision to expand the Agreement area was delayed pending further scientific analysis of BOM's findings. As upstream activities inevitably effect the downstream environment, to achieve a co-ordinated basin wide approach, it is optimal that the entirety of the Lake Eyre Basin is incorporated into the Lake Eyre Basin Agreement Area.

Agreement parties indicated they were amenable to increased participation in activities by NSW representatives. Although not currently a signatory to the Agreement, there is opportunity for NSW representatives to act as observers at Ministerial Forum and Senior Officer Group meetings to further develop and assess potential engagement opportunities.

Stakeholders were strongly supportive of the aim to expand the area of the Agreement, noting that management of the entire hydrologic area makes more sense than artificially limiting the area "based on human geography"

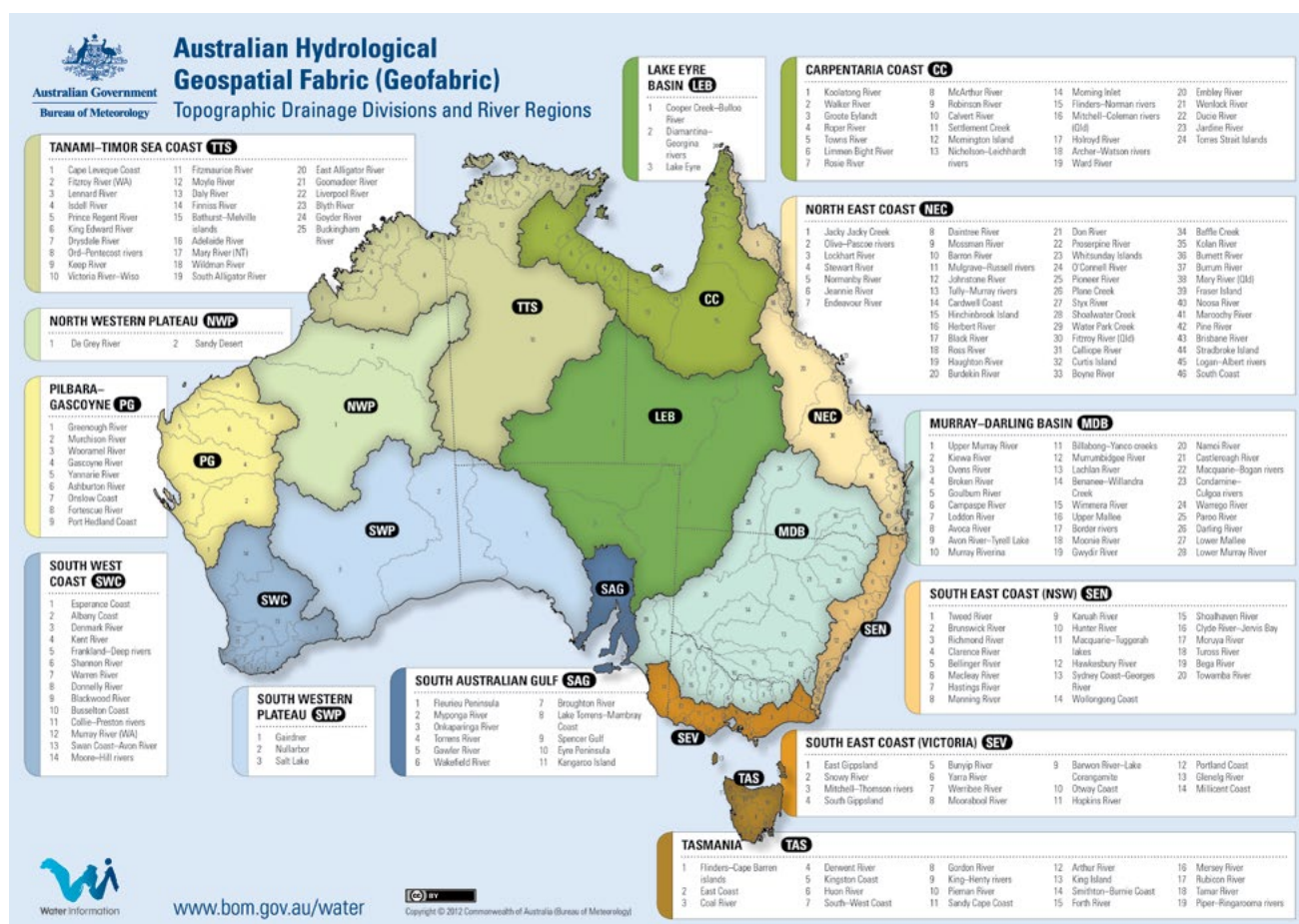


Figure 1. BOM Topographical draining divisions and river regions
(Source: Commonwealth of Australia, Bureau of Meteorology, 2012)

Proposals to Strengthen the Operation of the Agreement

In addition to developing a risk-based strategic plan for the Agreement area, there are a number of key themes borne out by stakeholder feedback which should be considered when developing risk-based controls. These are areas which can be examined in order to strengthen the operation of the Agreement :

- ensuring retention of corporate knowledge about water and related natural resource conditions and trends
- making better use of modern communication to enable improved connections between decision makers, communities, industry and scientists overcoming the challenges of remoteness in such a large basin
- increasing Aboriginal engagement, including Aboriginal engagement forums
- increasing the capacity of the Community Advisory Committee to engage with the communities and groups that they represent, to ensure its members can effectively balance the broad range of interests across

the Lake Eyre Basin, including consideration of its membership

- enhancing industry engagement (particularly from the resources sector) on the Community Advisory Committee
- exploring the most appropriate ways for the Ministerial Forum and Senior Officers Group to engage the Community Advisory Committee and the Scientific Advisory Panel in a proactive way to ensure best possible quality of advice
- ensuring outcomes from Ministerial Forum and Senior Officers Group meetings are shared in a timely way
- sharing the outputs of monitoring and assessment activities more broadly to maximise the practical benefits of this research.

As discussed above, the future structure of the Agreement would be best served by the addition of secondary instruments as required. These additional instruments could consider the points raised above as a framework to build upon, see recommendations below.

Public consultation feedback

Feedback received from stakeholders indicated that strengthening of the Agreement could occur in relation to the collaboration and commitments made between decision makers, community members, industry representatives and scientists. Stakeholders acknowledged that the Agreement should continue but needs strengthening. Stakeholders commented that implementing the recommendations of this report would enhance the Agreement and its operation. A need was identified by some stakeholders for greater engagement between the Community Advisory Committee, Scientific Advisory Panel and Senior Officers Group, to ensure advice received by the Scientific Advisory Panel and Community Advisory Committee was utilised appropriately.

Some stakeholders suggested that the Scientific Advisory Panel should incorporate a broader range of expertise beyond environmental science and management. The Review notes that the Scientific Advisory Panel currently has members with experience in freshwater ecology, indigenous water value, hydrogeology and wetland ecology. However, stakeholder feedback pointed out that there was some expertise that could be added on the panel, such as water quality. The Review also notes that the Scientific Advisory Panel exists to provide 'relevant, timely and high quality scientific advice to the Ministerial Forum' and that the experience of the panel members would ideally enhance and complement this purpose. The Review does not consider expanding the roles of the Scientific Advisory Panel to go beyond scientific advice to be appropriate at this point in time. Feedback from stakeholders highlighted that the members of both the Community Advisory Committee and Scientific Advisory Panel were ideally placed to develop sub-committees to address and manage different issues. Some stakeholders noted that the open-ended roles of the Scientific Advisory Panel worked effectively so far, but the majority heavily emphasised a need to clearly define both the Scientific Advisory Panel's

and the Community Advisory Committee's roles and responsibilities.

A key element in strengthening the Agreement identified by stakeholders was the relationship between the Community Advisory Committee, Scientific Advisory Panel and Senior Officers Group. Funding and logistical support were key areas that needed to be more specific and clear, as does the process of decision making and communication methods. Public feedback suggested that without assured funding, strengthening of the current institutions would not be successful. Additionally, the regularity and length of meetings of the Scientific Advisory Panel, Community Advisory Committee and Senior Officers Group, both independently and when meeting together, was a key area that stakeholders felt needed attention.

It was noted in feedback that the Agreement itself is non-descriptive in its outline of the governance of the Basin, and does not provide for any accountability process. Enhanced representation of all stakeholders was a key message of the public consultation. Stakeholders suggested formalising the Secretariat within the Agreement that serves as the first point of contact for management matters within the Basin, and engaging with local government through the Community Advisory Committee. Opportunities were identified for alignment of work activities to strive towards the same goal. As echoed in the Review, clearer roles and responsibilities of both committees were identified as areas for priority, as well as specific funding arrangements, decision-making and organisational processes. More emphasis on Aboriginal roles within the committees and wider Basin were highlighted.

Stakeholders were supportive of implementing the Review's recommendations around these issues, which are further explored below in the futures section.



Future review of the Agreement

The value of the current Agreement review process is that it identifies areas that require updating, areas where the Agreement may be operating beyond its original scope and objectives, evaluates the efficacy of the Agreement in its current state, and identifies opportunities for improvements and responses as conditions and context progress.

There are real opportunities to trigger change for the good. Stakeholder feedback indicated that the review process is valuable; however there was no consensus as to whether the current 10 year cycle was the best solution. The real issue for many was not the frequency, rather that governments heed the results of the review and take action.

Although other Intergovernmental Agreements, such as the Intergovernmental Agreement on the Environment, and the Intergovernmental Agreement on Commercial Vessel Safety Reform have more frequent review cycles, there was no identified need for more frequent reviews of the Lake Eyre Basin Intergovernmental Agreement. However, there is value in performing a mid-term 'health check' of the Agreement, potentially every 5 years, to ensure that

controls are effectively managed. This could take the form of a desktop review. The full Review should continue to be undertaken every 10 years to ensure that it is still serving its original purpose.

Public consultation feedback

Stakeholders noted that the assessment of water resources and the State of the Basin could occur more frequently, partially to better facilitate continuous stakeholder engagement, and partially to better share data and methodology. Transparency in monitoring and analysis data was highlighted as priority, which feeds into a more targeted monitoring strategy. Some stakeholders viewed the review cycle of the Agreement as insufficient, needing an increase in frequency, and some saw the current review cycle as appropriate. The current review cycle of the Agreement effectively accounts for the episodic nature of the Lake Eyre Basin, where climatic variability is the norm and there are significant fluctuations in water flow.



THE FUTURE OF THE AGREEMENT

The Lake Eyre Basin has been shown to be in reasonably good condition, and resilient to various issues and concerns that have occurred since the last review of the Agreement, though notably not any major or catastrophic events.

The operation of the Agreement itself is in much the same state, it has proved adequate, while not being tested to breaking point.

Stakeholders both in the area and from Agreement signatory parties recognise that the Agreement needs to change and adapt, and the future is uncertain.

The Review's recommendations are listed below and have been discussed throughout the body of the report. However, in order to best contextualise them, and give voice to the concerns raised by stakeholders during the public consultation phase, the review offers the following future vision for the Agreement.

FUTURE VISION

The Agreement going forward needs to reach beyond its current geographic boundaries. The expansion to the entirety of the hydrological basin, over and above lines on a map, will enable better holistic management, better monitoring and wider buy in from affected parties. The expansion eastward would also serve to bring NSW into the Agreement, which adds another strong voice to the Ministerial Forum and the Senior Officer's Group.

The Agreement will need to better outline its governance and funding arrangements. As stakeholders have made clear, the current structures are opaque, or lacking entirely. As a Legislation, the Agreement can be unwieldy, and difficult to amend to changing circumstances. We envisage an enhanced Agreement as building upon the current structure, with a number of Schedules outlining processes and terms of reference.

To that end the Review suggests that a planning committee is enacted for the Agreement Area. This multi-party committee, which may constitute similar membership to the SOG, would allow for detailed planning for land, water and related natural resource use within the Basin. Key to this approach would be the safeguarding of particularly sensitive areas, both culturally for the area's Indigenous population, economically to protect grazing land, and ecologically to ensure the ecosystem is preserved and sustainably managed.

This scenario is a bold one, involving the negotiation of new arrangements, particularly with the inclusion of NSW into the Agreement, however, it presents a real and clear opportunity to safeguard the area against potential threats, while serving the economic and social interests of the local people.

Recommendations

1. Develop a Risk Based Strategic Plan to provide firm action and guidance for Agreement parties. This plan will be informed by scientific and community views.
2. Investigate the option of multi-year budgeting to align with 10-year review cycle, with Ministerial discretion on annual budgets
3. Expand the Agreement to cover the whole hydrologic boundary of the basin.
4. Investigate the connections between the Lake Eyre Basin surface water and the Great Artesian Basin groundwater to assess whether there is need for aligned governance in the future.
5. Senior Officers Group and Ministerial Forum to review the terms of reference and operating protocols of the Scientific Advisory Committee and Community Advisory Committee with a view broaden their portfolios to include socioeconomic factors.
6. Assess current water demands across the Basin from development, agriculture and other industry to establish levels of current consumptive levels.
7. The Senior Officers Group review the 6 Policies and Strategies Policies from 2010 to assess relevance and implementation, and provide advice to Ministerial Forum by no later than mid-2019
8. Maintain a 10 year review cycle of the Intergovernmental Agreement with a 5 year desktop review.

Commonwealth Recommendation

Acknowledging the Agreement is now 18 years old, the Review recommends the Commonwealth initiate a review of the consistency, currency and relevance of the Act with modern legislation drafting principles, and to provide advice to the Ministerial Forum by not later than mid-2019.

APPENDICES

Appendix A: Map of the Lake Eyre Basin showing major river catchments, wetlands and settlements



Figure A.1: Map of the Lake Eyre Basin showing major river catchments, wetlands and settlements (Source: Australian Bureau of Agriculture and Resource Economics and Sciences, 2017)

Appendix B: REVIEW GUIDELINES

Terms of reference for the Review

1. The purpose of the Lake Eyre Basin Intergovernmental Agreement is to provide for the development or adoption, and implementation of Policies and Strategies concerning water and related natural resources in the Lake Eyre Basin Agreement Area to avoid or eliminate so far as reasonably practicable adverse cross-border impacts.
2. The Government is committed to ongoing water reform including the implementation of the Lake Eyre Basin Intergovernmental Agreement and the National Water Initiative principles.
3. The first Review of the Intergovernmental Agreement (the Review) was produced in 2007. The second Review is required by 2017 to establish the relevance of the Agreement in addressing the current threats and pressures within the Basin through its Policies and Strategies as set out in Part VIII – Policies and Strategies and its Objectives as set out in Clause 2.2.
4. The Review will be undertaken in consultation with the relevant state and territory governments and stakeholders.

Purpose

5. The purpose of the Review is to report on the extent:
 - i. the purpose of the Agreement has been achieved
 - ii. the objectives set out in Clause 2.2 of the Lake Eyre Basin Intergovernmental Agreement have been achieved
 - iii. the current Agreement efficiently addresses the current threats and pressures within the Lake Eyre Basin
 - iv. the activities of government adequately manage the threats and pressures within the Lake Eyre Basin.

Objectives

6. The objectives of the Review will be to report on:
 - i. the operation of the Lake Eyre Basin Intergovernmental Agreement
 - ii. the efficacy of the current Policies and Strategies as outlined within Part VIII of the Agreement
 - iii. the extent to which the Purpose and Objectives as set out in Part II of the Agreement have been achieved
 - iv. the changes that are needed to the Lake Eyre Basin Agreement to account for changed circumstances since 2007
 - v. the frequency for which analysis of Lake Eyre Basin Rivers Assessment data should be conducted.
7. The current objectives of the Lake Eyre Basin Intergovernmental Agreement, as outlined within Part II of the Agreement, are:
 - a. to provide a means for the Parties to come together in good faith to achieve the purposes of the Agreement
 - b. to define a process and context for raising and addressing water and related natural resource management issues in the Lake Eyre Basin Agreement Area
 - c. the special biodiversity and heritage values that have cross-border impacts, particularly those related to water quantity and quality, and flow regimes
 - d. to establish institutional arrangements for the development or adoption of Policies and Strategies and for the adoption of any relevant management plans established by a state
 - e. to provide for each of the Parties, so far as they are able within their respective jurisdictions, to progress the implementation of Policies and Strategies developed or adopted under this Agreement and to make management decisions and allocate resources accordingly
 - f. to provide a mechanism to review Policies and Strategies
 - g. to provide for the Parties to jointly promote and support the management of water and related natural resources through a cooperative approach between community, industry and other stakeholders, and all levels of government in the sustainable management of the Lake Eyre Basin Agreement Area
 - h. to encourage, promote and support water and related resource management practices which are compatible with the spirit and intent of the Agreement
 - i. to encourage and promote research and monitoring to improve understanding and support informed decision making in the Lake Eyre Basin Agreement Area
 - j. to provide for the review and, if necessary, revision of the Agreement from time to time
 - k. to raise general public awareness of the Lake Eyre Basin Agreement Area.
8. The 2016/17 review will also report on:
 - i. the extent the Agreement aligns with National Water Initiative principles
 - ii. the changes that are required to improve the overall effectiveness of the Agreement
 - iii. the learnings from the implementation of the Strategic Adaptive Management (SAM) approach that are relevant to long term management of the Lake Eyre Basin
 - iv. the appropriate future review points for the Lake Eyre Basin Intergovernmental Agreement.

Appendix C: Public Consultation Data

The public consultation phase of the Second Review opened on the 23rd of March 2018 and closed on the 2nd of May 2018. Noetic received 36 submissions from online submissions and 9 written submissions.

The public consultation was conducted by the Department of Agriculture and Water Resources, and consisted of an online component, as well as public meetings held in each state and territory who are Signatories to the Agreement.

The charts below outline the location of respondents, as well as their demography. NB the total for the demography totals to an amount greater than the total number of responders. This is explained by people identifying as a more than one of the offered criteria.

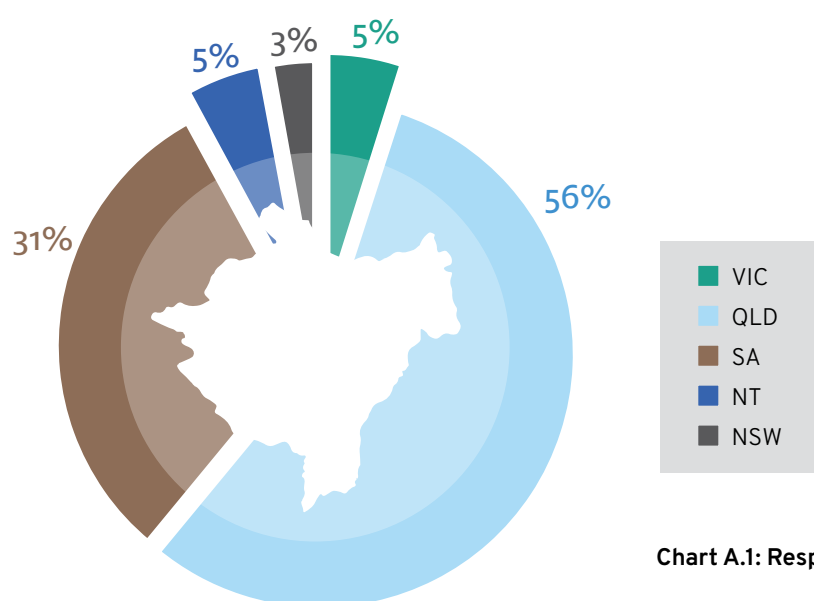


Chart A.1: Respondents by location

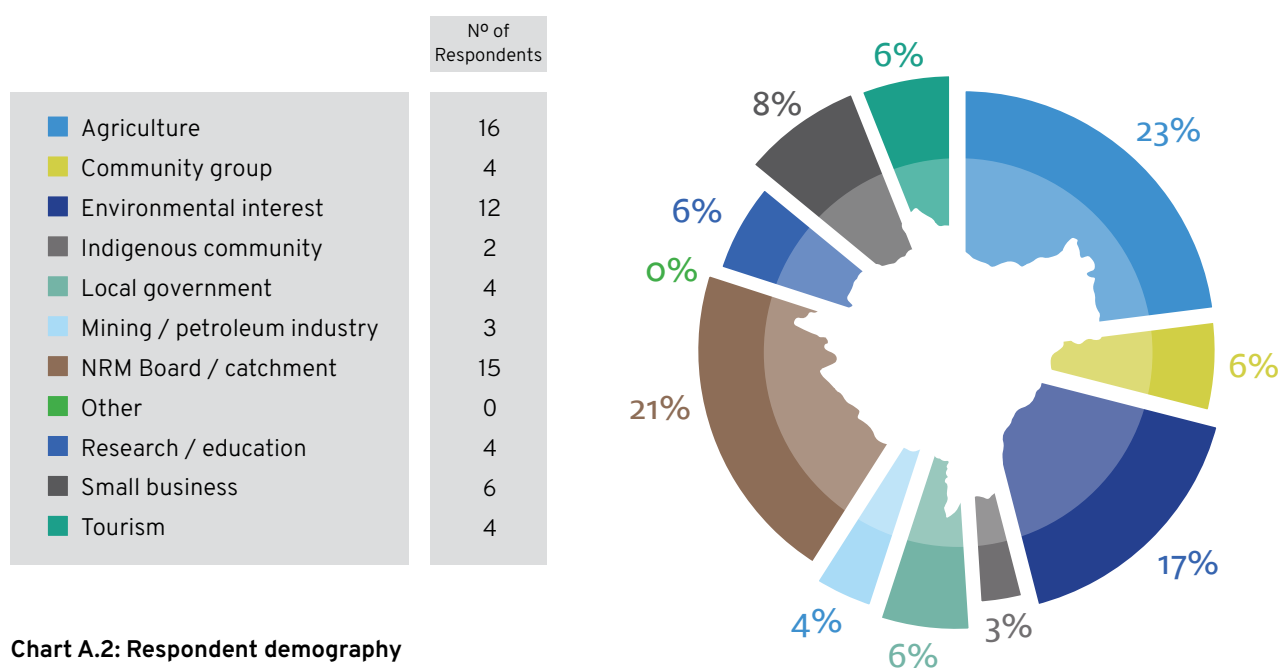


Chart A.2: Respondent demography